

Fig. 3A

Mouse alpha1-anitrypsin mRNA and polypeptide sequence

Met Thr Pro Ser Ile Ser Trp Gly Leu Leu Leu Leu Ala Gly Leu Cys Cys Leu Val Pro
ATG ACT CCC TCC ATC TCA TGG GGT CTA CTG CTT CTG GCA GGC CTG TGT TGC CTG GTC CCC
TAC TGA GGG AGG TAG AGT ACC CCA GAT GAC GAA GAC CGT CCG GAC ACA ACG GAC CAG GGG

Ser Phe Leu Ala Glu Asp Val Gln Glu Thr Asp Thr Ser Gln Lys Asp Gln Ser Pro Ala
AGC TTT CTG GCT GAG GAT GTT CAG GAG ACA GAC ACC TCC CAG AAG GAT CAG TCC CCA GCC
TCG AAA GAC CGA CTC CTA CAA GTC CTC TGT CTG TGG AGG GTC TTC CTA GTC AGG GGT CGG

Ser His Glu Ile Ala Thr Asn Leu Gly Asp Phe Ala Ile Ser Leu Tyr Arg Glu Leu Val
TCC CAT GAG ATC GCT ACA AAC CTG GGA GAC TTT GCA ATC AGC CTA TAC CGG GAG CTG GTC
AGG GTA CTC TAG CGA TGT TTG GAC CCT CTG AAA CGT TAG TCG GAT ATG GCC CTC GAC CAG

His Gln Ser Asn Thr Ser Asn Ile Phe Phe Ser Pro Val Ser Ile Ala Thr Ala Phe Ala
CAT CAG TCC AAC ACT TCC AAC ATC TTC TTC TCC CCA GTG AGC ATT GCC ACA GCC TTT GCT
GTA GTC AGG TTG TGA AGG TTG TAG AAG AAG AGG GGT CAC TCG TAA CGG TGT CGG AAA CGA

Met Leu Ser Leu Gly Ser Lys Gly Asp Thr His Thr Gln Ile Leu Glu Gly Leu Gln Phe
ATG CTC TCC CTA GGG AGC AAG GGT GAC ACT CAC ACG CAG ATC CTA GAG GGC CTG CAG TTC
TAC GAG AGG GAT CCC TCG TTC CCA CTG TGA GTG TGC GTC TAG GAT CTC CCG GAC GTC AAG
Asn Leu Thr Gln Thr Ser Glu Ala Asp Ile Lys Ser Phe Gln His Leu Leu Gln Thr
AAC CTC ACA CAA ACA TCG GAG GCT GAC ATC CAC AAG TCC TTC CAA CAC CTC CTC CAA ACC
TTG GAG TGT GTT AGC CTC CGA CTG TAG GTG TTC AGG AAG GTT GTG GAG GAG GTT TGG

Leu Asn Arg Pro Asp Ser Glu Leu Gln Leu Ser Thr Gly Asn Gly Leu Phe Val Asn Asn
CTC AAC AGA CCA GAC AGT GAG CTG CAG TTG AGC ACA GGC AAT GGC CTC TTT GTC AAC AAT
GAG TTG TCT GGT CTG TCA CTC GAC GTC AAC TCG TGT CCG TTA CGG GAG AAA CAG TTG TTA

Asp Leu Lys Leu Val Glu Lys Phe Leu Glu Glu Ala Lys Asn His Tyr Gln Ala Glu Val
GAC CTG AAG CTG GTG GAG AAG TTT CTG GAA GAG GCC AAG AAC CAT TAT CAG GCA GAA GTC
CTG GAC TTC GAC CAC CTC TTC AAA GAC CTT CTC CGG TTC TTG GTA ATA GTC CGT CTT CAG

Phe Ser Val Asn Phe Ala Glu Ser Glu Glu Ala Lys Val Ile Asn Asp Phe Val Glu
TTC TCT GTC AAC TTT GCA GAG TCA GAG GAG GCC AAG AAA GTG ATT AAT GAT TTT GTG GAG
AAG AGA CAG TTG AAA CGT CTC AGT CTC CTC CGG TTC TTT CAC TAA TTA CTA AAA CAC CTC

Lys Gly Thr Gln Gly Lys Ile Val Glu Ala Val Lys Glu Leu Asp Gln Asp Thr Val Phe
AAG GGA ACC CAA GGA AAG ATA GTT GAG GCA GTG AAA GAA CTG GAC CAA GAC ACA GTT TTC
TTC CCT TGG GTT CCT TTC TAT CAA CTC CGT CAC TTT CTT GAC CTG GTT CTG TGT CAA AAG

Ala Leu Gly Asn Tyr Ile Leu Phe Lys Gly Lys Trp Lys Lys Pro Phe Asp Pro Glu Asn
GCC CTG GGC AAT TAC ATT CTT TTT AAA GGC AAA TGG AAG AAG CCA TTC GAT CCT GAG AAC
CGG GAC CCG TTA ATG TAA GAA AAA TTT CCG TTT ACC TTC GGT AAG CTA GGA CTC TTG

Thr Glu Glu Ala Glu Phe His Val Asp Lys Ser Thr Thr Val Lys Val Pro Met Met Thr
ACT GAA GAA GCT GAG TTC CAC GTG GAC AAG TCC ACC ACG GTG AAG GTG CCC ATG ATG ACC
TGA CTT CTT CGA CTC AAG GTG CAC CTG TTC AGG TGG TGC CAC TTC CAC GGG TAC TAC TGG

Leu Ser Gly Met Leu Asp Val His His Cys Ser Thr Leu Ser Ser Trp Val Leu Leu Met
CTC TCG GGC ATG CTT GAT GTG CAC CAT TGC AGC ACA CTC TCC AGC TGG GTG CTG CTG ATG
GAG AGC CCG TAC GAA CTA CAC GTG GTA ACG TCG TGT GAG AGG TCG ACC CAC GAC GAC TAC

Asp Tyr Ala Gly Asn Ala Ser Ala Val Phe Leu Leu Pro Glu Asp Gly Lys Met Gln His
GAT TAC GCG GGC AAC GCC AGT GCT GTC TTC CTC CTG CCC GAA GAT GGG AAG ATG CAG CAT
CTA ATG CGC CCG TTG CGG TCA CGA CAG AAG GAG GAC GGG CTT CTA CCC TTC TAC GTC GTA

Leu Glu Gln Thr Leu Asn Lys Glu Leu Ile Ser Lys Ile Leu Leu Asn Arg Arg Arg Arg
CTG GAG CAA ACT CTC AAC AAG GAG CTC ATC TCT AAG ATC CTG CTA AAC AGG CGC AGA AGG
GAC CTC GTT TGA GAG TTG TTC CTC GAG TAG AGA TTC TAG GAC GAT TTG TCC GCG TCT TCC

Leu Val Gln Ile His Ile Pro Arg Leu Ser Ile Ser Gly Glu Tyr Asn Leu Lys Thr Leu

TTA GTC CAG ATC CAT ATC CCC AGA CTG TCC ATC TCT GGA GAA TAT AAC TTG AAG ACA CTC
AAT CAG GTC TAG GTA TAG GGG TCT GAC AGG TAG AGA CCT CTT ATA TTG AAC TTC TGT GAG

Met Ser Pro Leu Gly Ile Thr Arg Ile Phe Asn Asn Gly Ala Asp Leu Ser Gly Ile Thr
ATG AGT CCA CTG GGC ATC ACC CGG ATC TTC AAC AAT GGG GCT GAC CTC TCC GGA ATC ACA
TAC TCA GGT GAC CCG TAG TGG GCC TAG AAG TTG TTA CCC CGA CTG GAG AGG CCT TAG TGT

Glu Glu Asn Ala Pro Leu Lys Leu Ser Lys Ala Val His Lys Ala Val Leu Thr Ile Asp
GAG GAG AAT GCT CCC CTG AAG CTC AGC AAG GCT GTG CAT AAG GCT GTG CTG ACC ATC GAT
CTC CTC TTA CGA GGG GAC TTC GAG TCG TTC CGA CAC GTA TTC CGA CAC GAC TGG TAG CTA

Glu Thr Gly Thr Glu Ala Ala Ala Ala Thr Val Phe Glu Ala Val Pro Met Ser Met Pro
GAG ACA GGA ACA GAA GCT GCA GCA GCT ACA GTC TTT GAA GCC GTT CCT ATG TCT ATG CCC
CTC TGT CCT TGT CTT CGA CGT CGA TGT CAG AAA CTT CGG CAA GGA TAC AGA TAC GGG

Pro Ile Leu Arg Phe Asp His Pro Phe Leu Phe Ile Ile Phe Glu Glu His Thr Gln Ser
CCT ATC CTG CGC TTC GAC CAC CCT TTC CTT TTT ATA ATA TTT GAA GAA CAC ACT CAG AGC
GGA TAG GAC GCG AAG CTG GTG GGA AAG GAA AAA TAT TAT AAA CTT CTT GTG TGA GTC TCG

Pro Ile Phe Val Gly Lys Val Val Asp Pro Thr His Lys ***
CCC ATC TTT GTG GGA AAA GTG GTA GAT CCC ACA CAT AAA TGA
GGG TAG AAA CAC CCT TTT CAC CAT CTA GGG TGT GTA TTT ACT

Figure 3B

Mouse EMAP mRNA and polypeptide sequence

Met Pro Thr Glu Thr Glu Arg Cys Ile Glu Ser Leu Ile Ala Val Phe Gln Lys Tyr Ser
ATG CCT ACA GAG ACT GAG AGA TGC ATT GAG TCC CTG ATT GCT GTT TTC CAA AAG TAC AGC
TAC GGA TGT CTC TGA CTC TCT ACG TAA CTC AGG GAC TAA CGA CAA AAG GTT TTC ATG TCG

Gly Lys Asp Gly Asn Asn Thr Gln Leu Ser Lys Thr Glu Phe Leu Ser Phe Met Asn Thr
GGG AAG GAT GGA AAC AAC ACT CAA CTC TCC AAA ACT GAA TTC CTT TCC TTC ATG AAC ACA
CCC TTC CTA CCT TTG TTG TGA GTT GAG AGG TTT TGA CTT AAG GAA AGG AAG TAC TTG TGT

Glu Leu Ala Ala Phe Thr Lys Asn Gln Lys Asp Pro Gly Val Leu Asp Arg Met Met Lys
GAG CTG GCT GCC TTC ACA AAG AAC CAG AAG GAT CCT GGT GTC CTT GAC CGC ATG ATG AAG
CTC GAC CGA CGG AAG TGT TTC TTG GTC TTC CTA GGA CCA CAG CTG GCG TAC TAC TTC

Lys Leu Asp Leu Asn Cys Asp Gly Gln Leu Asp Phe Gln Glu Phe Leu Asn Leu Ile Gly
AAG CTG GAC CTC AAC TGT GAC GGG CAG CTA GAT TTC CAA GAG TTT CTC AAC CTC ATT GGT
TTC GAC CTG GAG TTG ACA CTG CCC GTC GAT CTA AAG GTT CTC AAA GAG TTG GAG TAA CCA

Gly Leu Ala Ile Ala Cys His Asp Ser Phe Ile Gln Thr Ser Gln Lys Arg Ile ***
GGC TTA GCT ATA GCG TGC CAT GAT TCT TTC ATC CAA ACT TCC CAG AAG CGA ATC TAA
CCG AAT CGA TAT CGC ACG GTA CTA AGA AAG TAG GTT TGA AGG GTC TTC GCT TAG ATT

Figure 3C

Alignment of homologous AAT mRNA and protein sequences from other species

		1		
hamster AAT	(1)	-----	ATCAGCTCTGGGACAGGCAAGCTAAAATGA	60
human AAT	(1)	-----	ACATGTAATCGACAATGC	
mouse AAT	(1)	-----	ATGA	
rabbit AAT	(1)	ATATCATCTCCCCATCTTGTCTGCCACCAGCCCTGGGCACTGAGTCCTGGACAATGC		
rat AAT	(1)	-----		
sheep AAT	(1)	-----	CGATAATGC	
Consensus	(1)	-----	GA AATG	
		61		120
hamster AAT	(32)	AGCCCTCCATCTCATGGGGATCCTGCTGCTGGCAGGCCGTGCTGCCCTGGTCCCCAGCT		
human AAT	(19)	CGTCTCTGTCTCGTGGGCACTGCTCTG-----CCAGGCTGTGCTGCCCTGGTCCCCGT		
mouse AAT	(5)	CTCCCCCTCCATCTCATGGGGTCTACTGCTCTGCTGCCAGGCCGTGCTGCCCTGGTCCCCAGCT		
rabbit AAT	(61)	CACCCCTCTGTCTCTCGGGGCGCTCCCTGCTGCCAGGCCGTGCTGCCCTGGTCCCCGGCT		
rat AAT	(1)	-----GCTCCATCTCACGGGGCTCTGCTGCTGCCAGGCCGTGCTGCCCTGGCCCCAGCT		
sheep AAT	(10)	CACTCTCCATCACACGGGGCTCTGCTGCTGCCAGGCCGTGCTGCCCTGGCCCCAGCT		
Consensus	(61)	C CCCTCCATCTCATGGGGCTCTGCTGCTGCCAGGCCGTGCTGCCCTGGTCCCCAGCT		
		121		180
hamster AAT	(92)	TCCTGGCTGAGGAT-----GCCAGGAGACAGAT-----GCCTCGAACAGGG		
human AAT	(76)	CCCTGGCTGAGGATCCCCAGGGAGATGCTGCCAGAGACAGAT-----ACATGCCACCATG		
mouse AAT	(65)	TTCTGGCTGAGGAT-----GTTAGGAGACAGAC-----ACCTGCCAGAAGG		
rabbit AAT	(121)	TCCTGGCCGACGAG-----GCCAGGAGACAGCC-----GTTTGGAGGCCATG		
rat AAT	(58)	TCCTGGCTGAGGAT-----GCCAGGAAACCGAT-----ACCTGCCAGCAGG		
sheep AAT	(70)	CCCTGGCTGGGTCTCCAAGGACACGCTCTCCAAGAGACAGATGATAACAGCCCACCCAGG		
Consensus	(121)	TCCTGGCTGAGGAT-----GCCAGGAGACAGAT-----ACCTGCCAGCAGG		
		181		240
hamster AAT	(134)	ATCAGGAGCACCAAGCCTGCTGTAAGATCGCTCAAATTGGCAGACTTTCTTCAGCC		
human AAT	(133)	ATCAGGATCACCCAAACCTTCACAAAGATCACCCCAACCTGGCTGAGTTGGCCTTCAGCC		
mouse AAT	(107)	ATCAG-----TCCCAGCCTCCGATGAGATCGTACAAACCTGGAGACTTTGCAATCAGCC		
rabbit AAT	(163)	AGCAGGACCGGCCAGCCTGGGACACGATGGCCCTGGGAGCTGGTTCAGTTGGCCTTCAGCC		
rat AAT	(100)	ACCAG-----AGT-----CCTACGGTAAGATTCTTCAAAACCTGGCAGACTTTGGCCTTCAGCC		
sheep AAT	(130)	A-----AG-----CAGCCTGCCACAAGATGCCCCAACCTGGCCAACTTTGCCCTTCAGCA		
Consensus	(181)	ATCAGGA C CCCAGCCTGCCATAAGATCGCTCAAACCTGGCAGACTTTGGCCTTCAGCC		
		241		300
hamster AAT	(194)	TATACCGGGAGCTGGTCCATCACTGCAATACGACCAACATCTTCTCTGCTGGTGGAGCA		
human AAT	(193)	TATACCGCCAGCTGGCACACCACTGCTAACAGCAACATCTTCTCTCCCCACTGAGCA		
mouse AAT	(164)	TATACCGGGAGCTGGTCCATCACTGCTAACACTTCAACATCTTCTCTCCCCACTGAGCA		
rabbit AAT	(223)	TGTACCGGGAGGGCCAGTCTAACACCAACATCTTCTCTCCCCGGTGGAGCA		
rat AAT	(157)	TATACCGGGAGCTGGTCCATCAATCCAATACATCCAACATCTTCTCTCCCCATGAGCA		
sheep AAT	(181)	TATACCCACAAGTTGGCCATCACTGCTAACACCAACATCTTCTCTCCCCAGTGGAGCA		
Consensus	(241)	TATACCGGGAGCTGGTCCATCACTGCTAACACCAACATCTTCTCTCCCCAGTGGAGCA		
		301		360
hamster AAT	(254)	TTCCCCACAGCCTTGCTATGGCTCTGCTGGCACCAAGGGTGTCACTCACAGCAGATTC		
human AAT	(253)	TGGCTACAGCCTTGCAATGGCTCTGGCTGGGACCAAGGGTGTACACTCACAGCAGATTC		
mouse AAT	(224)	TTGCCACAGCCTTGCTATGGCTCTGGCTGGGACCAAGGGTGTACACTCACAGCAGATTC		
rabbit AAT	(283)	TGGCCCTGGCCTTGCCATGGCTCTGGGACCAAGGGGACACCCACACCCAGCTCC		
rat AAT	(217)	TCACCAACAGCCTTGCCATGGCTCTGGGACCAAGGGTGTACACTCGCAAACAGATTC		
sheep AAT	(241)	TGGCTTCAAGCCTTGCGATGGCTTGGGAGGCCAAGGGCAACACTCACACTGAGATTC		
Consensus	(301)	TCGCCACAGCCTTGCTATGGCTCTGGGACCAAGGGTGTACACTCACACAGATTC		
		361		420
hamster AAT	(314)	TAGAGGGCCTGGGTTCAACCTCACAGAAATAGCCGAGGCTGAGGTCCACAAAGGCTTCC		
human AAT	(313)	TGGAGGGCCTGAAATTCAACCTCACGGAGATTCGGAGGCTCACATCCATGAGGCTTCC		
mouse AAT	(284)	TACAGGGCCTGCAAGTTCAACCTCACACAAACATCGGAGGCTGACATCCACAGTGGCTTCC		
rabbit AAT	(343)	TGGAGGGCCTGAAAGTTCAACCTCACGGAGACGGCCGAGGCCCAGATCCACAGGAGGCTTCC		
rat AAT	(277)	TAGAGGGCCTGGAGTTCAACCTCACACAGATAACCTGAGGCTGACATCCACAGGAGGCTTCC		
sheep AAT	(301)	TGGAGGGCCTGGGTTCACACCTCACTGAGCTAGCAGAGGCTGAGATCCACAAAGGCTTCC		
Consensus	(361)	TGGAGGGCCTGGAGTTCAACCTCACAGAGATAGC GAGGCTGAGATCCACAAAGGCTTCC		

		421	480
hamster AAT	(374)	ATAACCTCCTCCAGACCTTCAACAGGCCAGACAATGAGCTTCAAGCTGACCACAGGCCAATG	
human AAT	(373)	AGGAACCTCCTCCGTACCCCTAACCAAGGCCAGACAGCCAGCTCCAGCTGACCACCGGCCAATG	
mouse AAT	(344)	AAACACCTCCTCCAACCCCTCAACAGACAGACAGCTGAGCTGCCAGTTGAGCACAGGCCAATG	
rabbit AAT	(403)	GGCACCTCCTGCCACACCGCTAACAGGCCAGACAGCGAGCTGCAGCTGCCGCCGGCAATG	
rat AAT	(337)	ATCACCTCCTCCAACCTCTAACAGGCCAGACAGCTGAGCTGCAGCTGAACACAGGCCAATG	
sheep AAT	(361)	AGCATCTCTCCACACCCCTAACACAGGCCAACACCAGCTGCAACTGACCACCGGCCAATG	
Consensus	(421)	AGCACCTCCTCCA ACCCTCAACAGGCCAGACAGCTGAGCTGCAGCTGACCACCGGCCAATG	
		481	540
hamster AAT	(434)	GCCTGTTCATCCACAACAATCTAAAGCTGGTGGATAAGTTCTGGAAAGAGGTCAAGAACG	
human AAT	(433)	GCCTGTTCTCAGCGAGGGCTGAAGCTAGCTGGATAAGTTTGGAGATGTTAAAAAGT	
mouse AAT	(404)	GCCTCTTGTCAACAATGACTGAAGCTGGTGGAGAAGTTCTGGAAAGAGGCCAAGAACG	
rabbit AAT	(463)	CCCTGGTCTGGCAGCGAGAACCTGAAAGCTGCCACCAACAGTTCTAGAACGACCCAAAGAACG	
rat AAT	(397)	GCCTCTTGTCAACAAGAATCTGAAGCTGGTGGAGAAGTTCTGGAAAGAGGTCAAGAAC	
sheep AAT	(421)	GTCTGTTCATCAATGAGACTGCAAAAGCTAGTTGATACGTTTGGAGGATGTCAGAACATC	
Consensus	(481)	GCCTGTTCGTCAACGAGAATCTGAAGCTGGTGGATAAGTTCTGGAAAGAGGTCAAGAAC	
		541	600
hamster AAT	(494)	ATTACCACTCGGAAGCCCTTCTCTGTCACAGACTCAGAACAGGCCAAGAACAGTGA	
human AAT	(493)	TGTACCACTCAGAAGCCCTTCAGTCACACTTCAGGATCACGAAGAGGCCAAGAACAGA	
mouse AAT	(464)	ATTATCAGGCGAGAGTCTCTGTCACACTTCAGAGTCAGAGGAGGCCAAGAACAGTGA	
rabbit AAT	(523)	TGTACCACTCGGAAGCCCTTCTCTGTCAGGACCTGGGACCCCGAGGAGGCCAAGAACAGA	
rat AAT	(457)	ATTACCACTCAGAAGCCCTTCTCTGTCACACTTCAGGAGTCAAGAACAGTGAAGAAC	
sheep AAT	(481)	TGCACTCACTGCAAAAGCCCTTCAGGATGCTGAGGAGGCCAAGAACAGAAGA	
Consensus	(541)	TTTACCACTCAGAAGCCCTCTGTCACACTTCAGGAGACTCAGAGGAGGCCAAGAACAGTGA	
		601	660
hamster AAT	(554)	TCAACGGTTTGTGGAGAACGGAAACCCAAAGGAAAGATAGTTGATTACTGAAAGGACCTTG	
human AAT	(553)	TCAACGATTACGTGGAGAACGGTACTCAAGGAAATTGTGGATTGTTGGCAAGGAGCTTG	
mouse AAT	(524)	TTAATGATTTGTGGAGAACGGAAACCCAAAGGAAAGATAGTTGAGGCACTGAAAGAACTGG	
rabbit AAT	(583)	TCAACAGCCACGTGGAGAACGGGACCCAGGGAAAGATCGTGGACTGGTGCAAGAGCTGG	
rat AAT	(517)	TTAATGATTATGTAGAGAACGGAAACCCAAAGGAAAGATAGTTGATTGATGAAACAGCTGG	
sheep AAT	(541)	TCAATGATTATGTAGAGAACGGAAACCCATGGAAATTGTGGATTGGTAAAGGATCTTG	
Consensus	(601)	TCAATGATTATGTGGAGAACGGAAACCCAAAGGAAAGATAGTTGATTGGTGAAGGAGCTTG	
		661	720
hamster AAT	(614)	ACAAAAGACACAGTCTTGCCTGGTGAATTACATTCTTTAAAGGCAAGTGGAAAGAACG	
human AAT	(613)	ACAGAGACACAGTTTGTCTGGTGAATTACATCTCTTTAAAGGCAATGGGAGAGAC	
mouse AAT	(584)	ACCAAGACACAGTTTGCCTGGCAATTACATTCTTTAAAGGCAATGGAAAGAACG	
rabbit AAT	(643)	ACGCCGACACTGCTTGCCTGGTAACTACGTTCTTCAAGGGAAAGTGGGAGAACG	
rat AAT	(577)	ACGAAGACACGGTTTGCCTGGTAACTACATTCTCTTTAAAGGCAAGTGGAAAGAGGC	
sheep AAT	(601)	ACCAAGACACAGTTTGCCTGGTCAATTACATCTTTAAAGGAAATGGGAGAACG	
Consensus	(661)	AC AAGACACAGTTTGCCTGGTGAATTACATTCTTTAAAGGCAAGTGGGAGAACG	
		721	780
hamster AAT	(674)	CCTTCGATGCCAGAACACTGAGGAAGCTGACTTCCACGTGGACAAGACCAACCGGTGA	
human AAT	(673)	CTTTGAAAGTCAGGACACCGAGGACGAGGACTTCCACGTGGACAGGTGACCCACCGTGA	
mouse AAT	(644)	CATTGATCCTGAGAACACTGAAAGAGCTGAGTTCCACGTGGACAAGTCCACCCACGGTGA	
rabbit AAT	(703)	CCTTCGAGCCCGAGAACACCAAGGAAGAGGACTTCCACGTGGACGCCACGACACGGTGA	
rat AAT	(637)	CATTCAATCCTGAGGACACACTAGGGATGGTGAATTCACTGAGAACAGTCCACCCACAGTGA	
sheep AAT	(661)	CCTTCGAGGTGGAGCACACCCACGGAGAGGGACTTCCACGTGAATGAGCAACACCGGTGA	
Consensus	(721)	CCTTCGATGCCAGAACACTGAGGAAGCTGACTTCCACGTGGACAAGACCAACCGGTGA	
		781	840
hamster AAT	(734)	AGGTGCCCATGATGAGGCCCTGGGATGTTGACGTGGACTATGTTAGGACTCTGTCTCCA	
human AAT	(733)	AGGTCCCTATGATGAGCGTTAGGCATGTTAACATCCAGCAGCTGTAAGAACGCTGTCCA	
mouse AAT	(704)	AGGTGCCCATGATGACCCCTCTGGGGCATGCTGATGTCACCATGTCACCCACACTCTCCA	
rabbit AAT	(763)	GGGTGCCCATGATGTCGCCCTGGGATGATGATGTTGACATGCACTATTGAGCACACTGTCCA	
rat AAT	(697)	AGGTGCCCATGATGAAACCGCTGGGATGTTGACATGCACTATTGAGCACACTGTCCA	
sheep AAT	(721)	AGGTGCCCATGATGAAACCGCTGGGATGTTGACCTCCACTACTGTGAGAACGCTGCCA	
Consensus	(781)	AGGTGCCCATGATGAAACCGCTGGGATGTTGACATGCACTATTGAGCACGCTGTCCA	

		841		900
hamster AAT	(794)	GCTGGGTGCTGCTGATGGATTACCTGGCAACGCCACTGCCATCTCATCCTACCTGATG		
human AAT	(793)	GCTGGTACTGCTAATGAAATACCTGGCAATGCCACCGCCATCTTCTTCCCTACCTGATG		
mouse AAT	(764)	GCTGGGTGCTGCTGATGGATTACGGCGGCAACGCCAGTGGCTGCTTCCCTGGGAG		
rabbit AAT	(823)	GCACGGTCTGCTGATGGACTACAAGGCAACGCCACGGGGCTCTTCCCTGGGGAG		
rat AAT	(757)	GCTGGGTGCTGATGGATTACCTGGCAACGCCACTGCCATCTTCCCTGGGGAG		
sheep AAT	(781)	GCTGGGTGCTGCTGCTGGACTACGTGGCAACGTACCCGCGTGCCTCATCCTGGGGAG		
Consensus	(841)	GCTGGGTGCTGATGGATTACCTGGCAACGCCACTGCCATCTTCCCTGGGGAG		
		901		960
hamster AAT	(854)	ATGGCAAGATGCAGCCTGGAGCAAACCTCTCAACAAGGAAATCATGGCAAGTTCCCTGA		
human AAT	(853)	AGGGGAAACTACAGCACCTGGAGAAATGAACTCACCCACGATATCATGCCAACGTTCCCTGG		
mouse AAT	(824)	ATGGGAAGATGCAGCCTGGAGCAAACCTCTCAACAAGGAGCTCATCTCTAAAGATCCCTGC		
rabbit AAT	(883)	AGGGGAAGCTGCAGCACCTGGAGCACACGCTCACCAAGGGCTCATGGGAAAGTCCCTGG		
rat AAT	(817)	ATGGCAAGATGCAGCCTGGAGCAAACCTCTCACCAAGGATCTCATTTCCCGTTCCCTGC		
sheep AAT	(841)	TCCCCAAACTGCAGCACCTGGAGAAACGCTAACATGCCAACGTTCCCTGG		
Consensus	(901)	ATGGGAAGCTGCAGCCTGGAGCAAACCTCTCACCAAGGA CTCATGCCAACGTTCCCTGG		
		961		1020
hamster AAT	(914)	AGGACAGACACACAAGGTCAAGCCATGTAACACTTCCCCAAACTGTCCATCTCTGGAACCT		
human AAT	(913)	AAAAATGAAGACAGAAGGTCTGGCAGCTAACATTACCCAAACTGTCCATTACTGGAACCT		
mouse AAT	(884)	AAAACAGGCCAGAACGTTAGTCAGATCCATATCCCCAGACTGTCCATCTCTGGAGAAAT		
rabbit AAT	(943)	AAAAAAGCAGCTTCAGGTCTGTCACGGTCTCCATTCCCCAAACTCTCCATTCTGGAACCT		
rat AAT	(877)	AAAACAGGCAAACAAAGGTCAAGCCATCTCTACATTCCCCAAACTGTCCATCTCTGGAACCT		
sheep AAT	(901)	AAAAGAAATATGCAAGTCTGGCAATTACATTGCCAAACTGTCCATTTCGTGAAACGG		
Consensus	(961)	AAAACAGACACACAAGGTCTGCCAT TCCATTCCCCAAACTGTCCATTCTGGAACCT		
		1021		1080
hamster AAT	(974)	ATAACTTGAAGACAGCCCTGGATCCCTGGCATCACCCAGGTCTTCAGCAATGGGGCG		
human AAT	(973)	ATGACTCTGAAGAGCGCTCTGGGTCAACTGGCATCACTAAAGGTCTTCAGCAATGGGGCTG		
mouse AAT	(944)	ATAACTTGAAGACACTCATGAGTCCACTGGCATCACCCGGATCTCAACAATGGGGCTG		
rabbit AAT	(1003)	ACGACTCTGAAACCCCTGGTGGCAAACGGTGGCATCACCCAGGTCTTCAGGGACAACGGGG		
rat AAT	(937)	ATAACTTGAAGACACTCCCTGAGCTCACTGGCATCACCCGGGTCTCAACAATGATGCTG		
sheep AAT	(961)	ACGACTCTGAAAAGTGTCTGGTGAACGGTGGCATCACAGGGTCTTCAGCAACGGGGCTG		
Consensus	(1021)	ATGACTTGAAGACAGTCCTGGGTCACTGGCATCACCCGGGTCTTCAGCAATGGGGCTG		
		1081		1140
hamster AAT	(1034)	ACCTTCTGGATCACAGAGGA---TGTTCCTGAAGCTTGGCAAGGGCTGTCATAAGG		
human AAT	(1033)	ACCTCTCGGGGGTACAGAGGA---GGCACCCCTGAAGCTCTCAAGGGCGTGCATAAGG		
mouse AAT	(1004)	ACCTCTCGGAATCACAGAGGAAGATGCTCCCTGAAGCTAGCAAGGCTGTCATAAGG		
rabbit AAT	(1063)	ACCTCTCGGGGATCACGGAGCA---GGAAGCTCTGAAGGTGCTCCAGGGCTGGACAAGG		
rat AAT	(997)	ATCTCTCTGGAAATCACAGAGGA---TGCCCCCTGAAGCTTAGCAGGCTGTCATAAGG		
sheep AAT	(1021)	ACCTCTCAGGGATCACCGAGGA---ACAGCCTGATGGTGTCAAGGGCGTCCACAAGG		
Consensus	(1081)	ACCTCTCGGGATCACAGAGGA TGC CCCCTGAAGCT TGCAAGGGCTGTCATAAGG		
		1141		1200
hamster AAT	(1091)	CTGTGCTGACCATCGATGAGAGAGGGGAGGAAGCTGCAGGGGCCACATTATGGAAATGA		
human AAT	(1090)	CTGTGCTGACCATCGACGAGAGGGGACTGAAGCTGTTGGGCCATGTTTATAGGGCA		
mouse AAT	(1064)	CTGTGCTGACCATCGATGAGACAGGAACAGAAAGCTGCAGCAGCTACAGTCTTGAAGGG		
rabbit AAT	(1120)	TGGTGCTGACCATCGACGAGAGGGGAGGCCAGGCTGGGGGCCACATTGTTGAATAAGG		
rat AAT	(1054)	CTGTGCTGACCTTACATGAGAGGGGACAGAGGCTGCAGGAGGCCACTGTTGGTGGAGGG		
sheep AAT	(1078)	CTGCCTGACCATGATGAGAAAGGGAGAGAAGGTGTTGGGCCACGTTGGAAAGGTA		
Consensus	(1141)	CTGTGCTGACCATCGATGAGAGAGGGACAGAAGCTGCAGGGGCCACATT TGAAAGCCG		
		1201		1260
hamster AAT	(1151)	TCCCCATGTCCTGGCCCCCTGAGGTGAAACCTTAAACAGGCCCTTTCATGCCATAATAATATG		
human AAT	(1150)	TACCAATGTCATGGGGGAGAGGTCAAGTCAACAAACCTTGTCTTCTTAATGATTG		
mouse AAT	(1124)	TTCCCTATGTCATGGGGGCTATCTGCGCTTCGACCAACCTTTCCTTTTATAATAATTG		
rabbit AAT	(1180)	TACTGTATTCTATGGGGGAAAGGGTCAACCTTGTACAGGGCCCTTCCTTGTCACTACA		
rat AAT	(1114)	TCCCCATGTCCTGGCCCCCTCAAGTCAAGTTCGACCAACCTTTCATTTCACTGATAGTTG		
sheep AAT	(1138)	TCCCCATGTCCTGGGGAGAGGTCAACAGAGGACCCCTTCCTCTGCACTCCCTGAGG		
Consensus	(1201)	TCCCCATGTCATGGGGGCCACATT TGAAAGCC		

		1261		1320
hamster AAT	(1211)	ATAGACAGACAGCAAAGAGCCCCCTCTTGTGGGAAAAGTGGTGGATCCCACACGTTAAT		
human AAT	(1210)	AACAAATA---CCAAGTCTCGGCTCTTCATGGGAAAAGTGGTGAATCCCACCCAAAAAT		
mouse AAT	(1184)	AAGAACACA---CTCAGAGGCCGGATCTTGTGGGAAAAGTGGTGAATCCCACACATAAAAT		
rabbit AAT	(1240)	GTCATGAGG---TCAAGACTCGGCTCTTCGTGGGAAAAGTGGTGGATCCCAGCCAAACACE		
rat AAT	(1174)	AAT---CAGA-AACTCAGAGCCCCCTCTTGTGGGAAAAGTGTAGATAGATCCCAGACGTTAAT		
sheep AAT	(1198)	ACAGAAACA---CCAAGTCTCGGCTCTTCGTGGGAAAAGTGGTGAATCCCACCCAGCCT		
Consensus	(1261)	AA AACAGA CCAAGAGTCCCCTCTTGTGGGAAAAGTGGTGGATCCCACCCAT AAT		
		1321		1380
hamster AAT	(1271)	CACAAT-TCTCAGTC-AGATGTGATCTTCTGGATTGGGTCCCCT-----CCCCAGTGA		
human AAT	(1267)	AACTGCCTCTCGCTCCTCAACCCCTCCCTCCATCCCTGGGGGGCT-----CCCTGGATGA		
mouse AAT	(1241)	CA-----		
rabbit AAT	(1297)	AAGACCCCACCGCAGCACATTAAAGCTCTGAGCTGCCCTCCAGGGGGCAGCCCCCTC-----		
rat AAT	(1231)	CACTGT-CCTCAG---AAGTGAATGCCCTCTGGATGGGTCCCCT-----TCCTAATAA		
sheep AAT	(1255)	AACTGCCTCTCGGTTAGCTTCCCTCCAGGCAGGTCCCCCTCTTCCTCCATGG		
Consensus	(1321)	AACTGCCTCTCGG ACATC CATCCCTTC G CC GGTCCCCCT CCCC ATGA		
		1381		1435
hamster AAT	(1324)	CATTAACACACCCGTGCTGGCCCACCCATGCCTGAGTGCTTCTGCAAATGCTC		
human AAT	(1323)	CATTAAGAAGGGTTGAGCTGGA-----		
mouse AAT	(1243)	-----		
rabbit AAT	(1354)	-----		
rat AAT	(1282)	TATTAACCTCAGGCTGGCCTGGCCT-----		
sheep AAT	(1315)	CATTAAGGATAACTGACCT-----		
Consensus	(1381)	CATTAACGGCTG CCTGG		
mouse alpha1-antitrypsin polypeptide sequence				
1	1	MTPSISWGLL LLAGLCCLVP SFLAEDVQET DTSQKDQSPA SHEIATNLGD FAISLYRELV		
61	61	HQSNTSNIFF SPVSIATAFAA MSLGSKGDT HTQILEGLQF NLTQTSEADI HKSFQHLLQT		
121	121	LNRPDSELQL STGNGLFVNN DLKLVEKFLE EAKNHYQAEV FSVNFAESEE AKVINDFVE		
181	181	KGTQGKIVEA VKELDQDTVF ALGNYILFKG KWKKPFDPEV TEEAEFHVDK STTVKVPMMT		
241	241	LSGMLDVHHC STLSSWVLLM DYAGNASAVF LLPEDGKMQH LEQTLNKELI SKILLNRRRR		
301	301	LVQIHIPRLS ISGEYNLKTL MSPLGITRIF NNGADLSGIT EENAPLQLSK AVHKAVLTID		
361	361	ETGTEAAAAT VFEAVPMSMP PILRFDHPFL FIIFFEEHTQS PIFVGKVVDP THK*		
Alignment of homologous protein sequences from other species				
	1			60
mouse AAT	(1)	MTPSISWGLLLAGLCCLVPFAEDVQ-----ETDTSQKDQSPASHEIATNLGDFAI		
rat AAT	(1)	-APSHGGSCFWQPCVAWPPASWTRMPRK-----IPPSRTRVQPTVRFLQTLPSAYTGSWS		
human AAT	(1)	-MPSVSVWGTLLAGLCCLVPFAEDPQGDAAQKTDTSHHDDHPTFNKITPNLAFAFS		
sheep AAT	(1)	MAISITRGLLLAALCCLAP-----AGVLQGHAVQETDDAHQEEA-CHKIAPNLANFAFS		
hamster AAT	(1)	MKPSISWGTLLAGLCCLVPFAEDAQ-----ETDASKQDQEHQACCKIAPNLADFSFN		
rabbit AAT	(1)	MPPSVSRALLLLAGLGCL-----PGFTADEAQ-----ETAVSSHEODRPACHRRIAPSLVEFALS		
Consensus	(1)	M PSIS GLLLAGLCCLVPFAED Q ETD S HDQD PACHKIAPNLADFAFS		
	61			120
mouse AAT	(55)	LYRELVHOSNTSNIFFSPVSIATAFAMLSSGSKGDHTHQILEGQLFNLQTSEADIHKSF		
rat AAT	(59)	INPIHPTSSSPL-ASPQPSPCSPWGARVTLANRF-RAWSSTSHRYLRLTSTRPSTITSSKL		
human AAT	(60)	LYRQLAHOSNSTNIIFFSPVSIATAFAMLSSGKGDHTQILEGQLFNLTEIPEAQIHEGF		
sheep AAT	(59)	TYHKLAHOSNTSNIFFSPVSIASAFAMLSSGAKGNTHTEILEGLGFNLTELAEAEIHKG		
hamster AAT	(56)	LYRELVHOSNTTNIFFSPVSIATAFAMLSSGKGDHTHQILEGQLFNLTEIAEAEVHKGF		
rabbit AAT	(56)	LYREWARESNTTNIFFSPVSIATAFAMLSSGAKGDHTHQILEGQLFNLTEAQAQIHDF		
Consensus	(61)	LYRELAHOSNTTNIFFSPVSIATAFAMLSSGKGDHTHQILEG FNLTEAEEAEIHKG		
	121			180
mouse AAT	(115)	QHLLQTILNRPDSELQLSTGNGLFVNNDLKLVEKEFLEEAKNHYQAEVFSVNFAESEEAKKV		
rat AAT	(117)	STGQTVSCS-----TQAMASLSTRI-SWWRSEWKRSLRTTQKPSLSTLPTQKRLRK-		
human AAT	(120)	QELLRTLNQPDSQLLTTGNGLFSEGLKLVDKLEVEDVKKLYHSEAFVNFGDHEEAKKQ		
sheep AAT	(119)	QHLLHTLNQPNHQLQTTGNGLFNEASAKLVDTELEDVKNLHHSKAFSUNFRDSEEAKKK		
hamster AAT	(116)	HNLLQTFRNRPDNEQLTTGNGLFHNNNLKLVDKLEEVKNDYHSEAFSVNFTDSEEAKKV		
rabbit AAT	(116)	RHLLHTNRPDSELQALAGNAWSENKLQHKLEDAKNLYQSEAFLVDFRDPEQAKTK		
Consensus	(121)	QHLL TLNRPDSELQTTGNGLFISE LKLVDFKLEDVKNLYHSEAFSVNF DSEEAKK		

		181	240
mouse AAT	(175)	INDEVEKGTQGKIVEAVKELDQDTV FALGNYILFKGKWKPFDPENTEEAEFHVDKSTTV	
rat AAT	(168)	LMIM-RREPKER-DI--NSWTKTREPW-ITFSLKASGRGHSILSTLGLMLHT-TSPPQ-	
human AAT	(180)	INDYVEKGTQGKIVDLVKEELDRDTVFALVNYIFFKGKWEPPFEVKDTEDEDHVVDQVTTV	
sheep AAT	(179)	INDYVEKGSHGKIVDLVKDLQDTVFALVNYISFKGKWEKPFEVEHTTERDHVNEQTTV	
hamster AAT	(176)	INGEVEKGTQGKIVDLVKDLKDTVIALVNYIFFKGKWKPFDAADNTEEADEHVDKTTTV	
rabbit AAT	(176)	INSHVEKGTRGKIVDLVQELDARTIALVNYIFFKGKWEKPFEPEENTKEEDEHVDA TTV	
Consensus	(181)	INDFVEKGTQGKIVDLVKEELDKDTVLALVNYIFFKGKWEKPFEVENTEE DFHVD TTV	
		241	300
mouse AAT	(235)	KVP----MMT LSGMLDVHHCSTLSSWLLMDYAGNANASAVFILPEDGKMQHIEQTLNKEI	
rat AAT	(221)	RCP----TAWACLTCTIAAHCPAGC--WETWATPLP-SSSCPMMARCSIWSKISPRISFPGS	
human AAT	(240)	KVP----MMKRLGMFNTOHCKKLSSWLLMKYLGNATAIFFLPDEGKLQHIEENELTHDII	
sheep AAT	(239)	KVP----MMNRLGMFDLHCDKLASWLLMDYVGNVTACFLPDLGKLQQEDKLNNEII	
hamster AAT	(236)	KVP----MMMSRLGMFDVHVSTLSSWLLMDYLGNATAIFILPDDGKMQHIEQTLNKEI	
rabbit AAT	(236)	RVP----MMMSRLGMVVMFHGSTLAVSTVLLMDYKGNATAIFILPDEGKLQHIEHTLTTEL	
Consensus	(241)	KVP MMMSRLGMFDVHHCSTLSSWLLMDYLGNATAIFILPDDGKLQHLEQTLN ELI	
		301	360
mouse AAT	(291)	SKILLNRRRLVQIHTPRISISGEYNLKTMSPLGITRIFNNGADLSGITEENAPLKL SK	
rat AAT	(276)	C-TGKOGQPFSTSPNCPSIETPIT-RHS-AHWASPGSSTMMILSLESQRMP-----SLAR	
human AAT	(296)	TKFLENEDRRSASIHLPKISITGTYDLKSVLGQLGITKVFSNGADLSGVTEE-APLKL SK	
sheep AAT	(295)	AKFLEKKYASSANIHLPKISISETYDLKTVLGELGINRVSNGADLSGITEE-QPLM VSK	
hamster AAT	(292)	GKFLKDRHTRSANHFPKLSISGTYNLKTAIDPLGITQVFSNGADLSGITEE-VPLKL GK	
rabbit AAT	(292)	AKFLAKSSFRSVTVRFKISISGTYDLKPLGKLGITQVFSNDALSGITEQ-EALK VSQ	
Consensus	(301)	AKFL NR RSASLHLPKLSISGTYDLKLLG LGITRVSNGADLSGITEE PLKL SK	
		361	420
mouse AAT	(351)	AVHKAVLTIDETGTEAAAATVFEAVPMSPMPEIIRFDHPFLFIIIEEHTQS-PFVGKVVD	
rat AAT	(328)	LCIRLC-P-MRGEQLQEPWLWRPSPCLCPLK-SSTTLFS--LNQKLRAPSIWEK--EP	
human AAT	(355)	AVHKAVLTIDEKGTEAAGAMFLEAIPMSIIPPEVKFNKPFLMIEQNTKS-PLFVGKV VN	
sheep AAT	(354)	AHKAAALTIDEKGTEAAGATFLEAIPMSIIPPDVEFNRPFLCILYDRNTKS-PLFVGKV VN	
hamster AAT	(351)	AVHKAVLTIDERGTEAAGATFMEIIIPMSVPPFVNFNSPFIAIIYDROTAKSPLFVGKVVD	
rabbit AAT	(351)	AHKVVLVTIDERGTEAAGATFVBYVLYSMQRVTFDPPFLFVYISHEVKS-PLFVGKVVD	
Consensus	(361)	AVHKAVLTIDEKGTEAAGATFLEAIPMSMPPEV FNRPFLFIYD NTKS PLFVGKVVD	
		421	
mouse AAT	(410)	PTHK-	
rat AAT	(381)	HV--	
human AAT	(414)	PTQK-	
sheep AAT	(413)	PTQA-	
hamster AAT	(411)	PTR--	
rabbit AAT	(410)	PTQH-	
Consensus	(421)	PTQ	

Fig 3D

Alignment of homologous EMAP mRNA and protein sequences from other species

		1			60
rabbit EMAP	(1)	-----	-----	-----	-----
dog EMAP	(1)	-----	-----	-----	-----
human EMAP	(1)	-----	ATGTTGACCGAGCTGGAGAAAGCCTTGAACTCTATCATCCACGCTAACAC	-----	-----
rat EMAP	(1)	-----	ATGGCAACTGAACTGGAGAAGGCCTTGAGCAACGTCATTGAAGTCCTAAC	-----	-----
pig EMAP	(1)	ATGGCAAAAGACCCACAGAGACTGAGCGTTGCATTGAATCTCTGATTGCTATTTC	-----	-----	-----
mouse EMAP	(1)	-----	ATGCCTACAGAGACTGAGAGATGCATTGAGTCCTGATTGCTATTTC	-----	-----
Consensus	(1)	ATG C AC GAG	GAGA	GCATGAA	TCTCTGATTGCTTTCCA
		61			120
rabbit EMAP	(16)	AAAGTACGCTGGAAAGGATGGCACAGGGTCACCCCTGCTCAAGACCGAGTTCC	-----	-----	-----
dog EMAP	(30)	AAAGTTGCTGGAAAGGAGGGTAACAACGTGACACTCTCCAAGACAGAGTTCC	-----	-----	-----
human EMAP	(52)	AAAGTACTCCCTGATAAAAGGGAAATTCCATGCCGTCACAGGGATGACCTGAAGAAATTG	-----	-----	-----
rat EMAP	(52)	AAATTATCTGGATAAAAGGGAACTACACATGCCCTTACAGGGATGACCTGAAGAAATTG	-----	-----	-----
pig EMAP	(61)	AAAGCATGCTGGAAAGGAGCGGTAAACAACGAAAATCTCAACACCCAGTTCC	-----	-----	-----
mouse EMAP	(52)	AAAGTACACCGGGAAAGGATGGAAACAAACACTCAACTCTCAAAACTGAATTCC	-----	-----	-----
Consensus	(61)	AAAGTATGCTGGAAAGGA	GGGAACAAAC	TACCCCTCCAAGACTGAGTTCTGACCTTC	-----
		121			180
rabbit EMAP	(76)	ATGAACACAGAGCTGGCTGCCCTCACAAAGAACCGAGAAGGACCCGGCGTCTGACCGC	-----	-----	-----
dog EMAP	(90)	ATGAATACAGAACTGGCTGCCCTCACAAAGAACCGAGAAGGACCCGGCTGCTTGACCGC	-----	-----	-----
human EMAP	(112)	CTAGAGACCGAG-----TGTCTCAGT-----ATATCAGGATA-AA-----GGGTGC-AGACGTG	-----	-----	-----
rat EMAP	(112)	GTCACTACTGAG-----TGCCTCTCAGT-----TTGTGCAAGAT-AA-----AAATAC-CGAAAGG	-----	-----	-----
pig EMAP	(121)	ATGAATACAGAGCTGGCTGCCCTCACACAGAACCGAGAAAGACCCGGCTGGTGTCTGACCGC	-----	-----	-----
mouse EMAP	(112)	ATGAACACAGAGCTGGCTGCCCTCACAAAGAACCGAGAAGGATCTGGTGTCTGACCGC	-----	-----	-----
Consensus	(121)	ATGAATACAGAGCTGGCTGCCCTCACAAAGAACCGAGAAGGACCCGGCTGGTGTCTGACCGC	-----	-----	-----
		181			240
rabbit EMAP	(136)	ATGATGAAGAAATTGGACCTCAACAGTGACGG-GCAGCTGGATTTC	-----	-----	-----
dog EMAP	(150)	ATGATGAAGAAACTGGACCTCAACTCTGATGG-GCAGCTGGATTTC	-----	-----	-----
human EMAP	(160)	TGGTCAAAAGAGTTGGATATCAACACTGATGGTGCAGTTA-ACCTCCAGGAGTTCC	-----	-----	-----
rat EMAP	(160)	TTGTCATAAGAAATTGGACGTCATAGTGACAACGCAATTG-ACCTCGAAGAGTTCT	-----	-----	-----
pig EMAP	(181)	ATGATGAAGAAATTGGACCTCGACTCTGATGG-GCAGCTAGATTCCAAGAAATTCT	-----	-----	-----
mouse EMAP	(172)	ATGATGAAGAAGCTGGACCTCAACTGTCACGG-GCAGCTAGATTCCAAGAGTTCT	-----	-----	-----
Consensus	(181)	ATGATGAAGAAATTGGACCTCAACTGATGG	-----	GCAGCTAGATTCCAAGAGTTCT	-----
		241			300
rabbit EMAP	(184)	-----	-----	-----	-----
dog EMAP	(209)	TCTTATTGGTGGCATGGCCATAGCTGCCATGACTCC	-----	-----	-----
human EMAP	(219)	TCTGGTGTATAAAAGATGGGCTGGCAGCCCACAAAAAAAGCCATGAAGAAACCCACAA	-----	-----	-----
rat EMAP	(219)	GTTGGTGTATAAGGGTGGGCTGGCAGCTCATAAA-----GACACGCCACAA	-----	-----	-----
pig EMAP	(240)	TCTTATTGGCGGGCTGGCCATAGCTGCCATGACTCC	-----	-----	-----
mouse EMAP	(231)	CCTCATGGTGGCTTAGCTATAGCGTGCCTGATCTTICATCCAACCTTCCAGAACGCG	-----	-----	-----
Consensus	(241)	TCT ATTGG GGC TGGCCATAGC TGCCATGA	TC	TT	AA
		301			360
rabbit EMAP	(184)	-----	-----	-----	-----
dog EMAP	(269)	GAAGTAAATCGGAGGGTTCTGGGCTGGCCTCCAGACCACCTTTCTTCAAAACAG	-----	-----	-----
human EMAP	(276)	AGAGTAG-----	-----	-----	-----
rat EMAP	(264)	GGAGTAA-----	-----	-----	-----
pig EMAP	(294)	GAAGTAA-----	-----	-----	-----
mouse EMAP	(291)	AATCTAA-----	-----	-----	-----
Consensus	(301)	GAAGTAA	-----	-----	-----
		361			420
rabbit EMAP	(184)	-----	-----	-----	-----
dog EMAP	(329)	CTTCCCAATCATCACATCCTCTCACATCCTACACAGACCTGAGCCCACAGTGTCCACCA	-----	-----	-----
human EMAP	(283)	-----	-----	-----	-----
rat EMAP	(271)	-----	-----	-----	-----
pig EMAP	(301)	-----	-----	-----	-----
mouse EMAP	(298)	-----	-----	-----	-----
Consensus	(361)	-----	-----	-----	-----

		421	460
rabbit	EMAP	(184)	-
dog	EMAP	(389)	CCCTGTGCAGGCCAGTCCTGCTGGTAGTGAATAAAGCAAT
human	EMAP	(283)	-
rat	EMAP	(271)	-
pig	EMAP	(301)	-
mouse	EMAP	(298)	-
Consensus		(421)	

Mouse EMAP protein sequence

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1 MPTETERCIE SLIAVFQKYS GKDGNNTQLS KTEFLSFMTN ELAAFTKNQK DPGVLDMMK
61 KLDLNCDCGQL DFQEFLNLIG GLAIACHDSF IQTSQLKRI*

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Alignment of homologous protein sequences from other species

		1	60
dog	EMAP	(1)	-----TRSLIAVFQKFAGKEGNNTLSKTEFLIFMNTELAAFTKNQKDPGVLD
mouse	EMAP	(1)	---MPTETERCIESLIAVFQKYSGKDGNNTQLSKTEFLISFMNTELAAFTKNQKDPGVLD
rabbit	EMAP	(1)	-----FAVFQKYGAKDGHSVTLSKTEFLISFMNTELAAFTKNQKDPGVLD
human	EMAP	(1)	-----MLTELEKAISNIDVYHKYSLIKGNFHAYRDDLKKLLETECPQYIPKK---GADV
rat	EMAP	(1)	---MATELEKAISNIVEVYHNYSGIKGNHHALYRDDFRKMYTTECPQFVQNK---NTES
pig	EMAP	(1)	MAKRPTETERCIESLIAVFQKHAAGRDNNTKLSKTEFLIFMNTELAAFTQNQKDPGVLD
Consensus		(1)	M TE EK I SLIAVFQKYAGKDGNN LSKTEFLSFMTNTELAAFTKNQKDPGVLD
		61	102
dog	EMAP	(50)	MMKKEDLNSDGQLDFQEFLNLIGGMIAIACHDSFTRSPHFRK-
mouse	EMAP	(58)	MMKKEDLNCDCGQLDFQEFLNLIGGIAIACHDSFIQTSQLKRI-
rabbit	EMAP	(46)	MMKKEDLNSDGQLDFQ-----
human	EMAP	(54)	WFKEEDLNTEDGAVNDFQEFILILVIKMGVAHKKSHEESHKE--
rat	EMAP	(54)	UFKEEDVNSDNAFEEFLALVIRVGVAHKDSHKE-----
pig	EMAP	(61)	MMKKEDLSDGQLDFQEFLNLIGGIAIACHDSFIKSTQK-----
Consensus		(61)	MMKKEDLNSDGQLDFQEFLNLIGGLAIACHDSF KSS K

Fig. 4

